

## § 21.905

power of the transmitter. The Commission may order a reduction in aural signal power to diminish the potential for harmful interference.

[55 FR 46010, Oct. 31, 1990, as amended at 58 FR 44896, Aug. 25, 1993; 60 FR 36554, July 17, 1995; 60 FR 57367, Nov. 15, 1995]

### § 21.905 Emissions and bandwidth.

(a) A station transmitting a television signal shall not exceed a bandwidth of 6 MHz (for both visual signal and accompanying aural signal), and will normally employ vestigial sideband, amplitude modulation (C3F) for the visual signal, and frequency modulation (F3E) or (G3E) for the accompanying aural signal.

(b) For purposes other than standard television transmission, different types of emissions may be authorized if the applicant describes fully the modulation and bandwidth desired, and demonstrates that the bandwidth desired is no wider than needed to provide the intended service. However, in no event shall the necessary or occupied bandwidth, whichever is greater, exceed 6 MHz.

(c) Any licensee of a station in the 2150–2162 MHz or 2596–2644 MHz, 2650–2656 MHz, 2662–2668 MHz, or 2674–2680 MHz frequency bands, after notice and opportunity for hearing, may be required to use the frequency offset technique to avoid or to minimize harmful interference to another licensed station in the 2150–2162 MHz and 2596–2544 MHz, 2650–2656 MHz, 2662–2668 MHz, and 2674–2680 MHz frequency bands or to make other changes as provided in §§ 21.100, 21.107, 21.900, 21.901, 21.902, 21.904, 21.905(a), 21.905(b), 21.906, 21.907, and 21.908 of this part.

[44 FR 60534, Oct. 19, 1979, as amended at 49 FR 48700, Dec. 14, 1984; 55 FR 46011, Oct. 31, 1990; 56 FR 57818, Nov. 14, 1991]

### § 21.906 Antennas.

(a) Transmitting antennas shall be omnidirectional, except that a directional antenna with a main beam sufficiently broad to provide adequate service may be used either to avoid possible interference with other users in the frequency band, or to provide coverage more consistent with distribution of potential receiving points. When an applicant proposes to employ a direc-

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tional antenna, the applicant shall provide the Commission with information regarding the orientation of the directional antenna, expressed in degree of azimuth, with respect to true north.

(b) The use of horizontal or vertical plane wave polarization, or right hand or left hand rotating elliptical polarization may be used to minimize the hazard of harmful interference between systems.

(c) Transmitting antennas located within 56.3 kilometers (35 miles) of the Canadian border should be directed so as to minimize, to the extent that is practical, emissions toward the border.

(d) Directive receiving antennas shall be used at all points and shall be elevated no higher than necessary to assure adequate service. Receiving antenna height shall not exceed the height criteria of Part 17 of this chapter, unless authorization for use of a specific maximum antenna height (above ground and above mean sea level) for each location has been obtained from the Commission prior to the erection of the antenna. Requests for such authorization shall show the inclusive dates of the proposed operation. (See Part 17 of this chapter concerning the construction, marking and lighting of antenna structures.)

[44 FR 60534, Oct. 19, 1979, as amended at 52 FR 37786, Oct. 9, 1987; 58 FR 44896, Aug. 25, 1993]

### § 21.907 Transmission standards.

(a) A licensee assigned a 6 MHz channel must be able to provide one type of monochrome and color television service which complies with the VHF transmission standards set forth in § 73.682(a) of this chapter, except that the provision of § 21.906(b) shall replace the requirements of § 73.682(a)(14) of this chapter.

(b) A licensee assigned a 4 MHz channel must be able to provide one type of monochrome and/or color television service which complies with VHF transmission standards set forth in § 73.682(a) of this chapter, except that:

(1) The provision of § 21.906(b) shall replace the requirements of § 73.682(a)(14) of this chapter, and

(2) The requirements of § 73.682 (a)(1), (a)(2), (a)(3), (a)(4), (a)(5), (a)(9), (a)(19),

and (a)(20) of this chapter shall not apply.

(c) In addition to the standard television transmission service specified in paragraphs (a) and (b) of this section, the licensee may offer a television service not meeting such standards if the tariff or contract clearly describes the type and quality of the service and distinguishes it from the standard service, and if the transmitter is type-accepted for such use.

(d) For services other than television, a licensee may provide transmissions as described in the tariff or contract if the authorized bandwidth is not exceeded and the transmitter is type-accepted for such use.

(e) In order to insure that transmitting information is not likely to be received in intelligible form by unauthorized subscribers or licensees, a licensee may vary the transmission standards specified in paragraphs (a), (b), and (c) of this section, provided that the encoded information is recoverable without perceptible degradation as compared to the same information transmitted in accordance with paragraphs (a), (b), and (c) of this section.

[52 FR 27556, July 22, 1987]

#### **§21.908 Television transmitting equipment.**

(a) Except as otherwise provided in this section, the requirements of paragraphs (a), (b), (c), (d), and (e) of §73.687 of this chapter shall apply to stations in this service transmitting standard television signals.

(b) On or after November 1, 1991, the maximum out-of-band power of a transmitter operating in the frequency bands 2150–2162 MHz, 2596–2644 MHz, 2650–2656 MHz, 2662–2668 MHz, and 2674–2680 MHz shall be attenuated 38 dB relative to the peak visual carrier at the channel edges and constant slope attenuation from this level to 60 dB relative to the peak visual carrier at 1 MHz below the lower band edge and 0.5 MHz above the upper band edge. All out-of-band emissions extending beyond these frequencies shall be attenuated at least 60 dB below the peak visual carrier power. However, should harmful interference occur as a result of emissions outside the assigned channel, additional attenuation may be re-

quired. A transmitter licensed prior to November 1, 1991, that remains at the station site initially licensed, and does not comply with this paragraph, may continue to be used for its life if it does not cause harmful interference to the operation of any other licensee. Any non-conforming transmitter replaced after November 1, 1991, must be replaced by a transmitter meeting the requirements of this paragraph.

(c) The requirements of §73.687(c)(2) of this chapter will be considered to be satisfied insofar as measurements of operating power are concerned if the transmitter station is equipped with instruments for determining the combined visual and aural operating power. However, licensees must maintain the operating powers within the limits specified in §21.904 of this part. Measurements of the separate visual and aural operating powers must be made at sufficiently frequent intervals to insure compliance with the rules, and in no event less than once a month.

(d) Television transmitting equipment designed for stations whose authorized bandwidth in 4 MHz or less for the visual and accompanying aural signal is subject to the provisions of §21.101 of this part with respect to the frequency tolerance of the visual and aural carriers. Such equipment is also subject to paragraphs (a) and (b) of this section, except that the provisions of §73.687 (a), (b), and (c)(1) of this chapter shall not apply.

(e) As a further exception to the other requirements of this section, transmitting equipment characteristics may vary from these requirements to the extent necessary to insure that transmitted information is not likely to be received in intelligible form by unauthorized subscribers or licensees, provided such variations permit recovery of the transmitted information without perceptible degradation as compared to the same information transmitted without such variations.

[55 FR 46011, Oct. 31, 1990, as amended at 56 FR 57818, Nov. 14, 1991]

#### **§21.909 MDS response stations.**

(a) An MDS response station is authorized to provide communication by voice and/or data signals with its associated MDS station. An MDS response